CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 14, 2015

FID: 445031180
Permit: 14-DMM-191

TO: Dave Minkey – NER

FROM: John Roth – AM/7

SUBJECT: Air Dispersion Analysis for Expera Thilmany Mill - Kaukauna

A. INTRODUCTION

A dispersion modeling analysis was completed on January 14, 2015 to assess the impact of particulate matter (PM_{10} & $PM_{2.5}$) emissions from changes at Expera Thilmany Mill in Kaukauna on ambient air quality.

B. MODELING ANALYSIS

- Expera supplied the emission rates and stack parameters used in this analysis via a report from RTP Environmental Associates. Building dimensions were determined using BPIP-PRIME with measurements taken on plot plans provided with the application. Please refer to the source parameter table.
- Five years (2006-2010) of preprocessed meteorological data was used in this analysis. The surface data was collected in Green Bay (GRB), and the upper air meteorological data originated in Green Bay.
- The AERMIC (AMS/EPA Regulatory Model Improvement Committee) Model (AERMOD) was also used in the analysis. The model used rural dispersion coefficients with the regulatory default options. These allow for calm wind and missing data correction, buoyancy induced dispersion, and building downwash including recirculation cavity effects.
- The receptors used in this analysis consisted of 1,537 points spaced every 25-meters along the fence line and a rectangular grid with 50-meter resolution extending 1000 meters from the facility fence line. Points within known facility fences were not considered. Receptor terrain elevations were derived from AERMAP using National Elevation Dataset (NED) tiles.
- As this analysis only considered the relative impact of the proposal to ambient air quality in comparison to the significant impact levels (SILs), regional background concentrations were not considered.

C. MODEL RESULTS

The results presented in the following tables demonstrate that no receptor point will have a change in impact above the daily or annual PSD significance level. By definition the proposed modifications has an insignificant impact on air quality, assuming the emission rates and stack parameters in the source table.

Modeling Analysis Results (All Concentrations in $\mu g/m^3$)				
	$PM_{2.5}$ 24 hour	$PM_{2.5}$ Annual	PM_{10} 24 hour	PM_{10} Annual
Change in Impact	1.03	0.114	2.32	0.208
PSD Significant Impact	1.2	0.3	5.0	1.0

EXPERA THILMANY MILL – KAUKAUNA (IB MACT Project) Project Emission Rates & Source Parameters							
Source ID	LOCATION (UTM83)	HEIGHT (M)	TEMP (K)	VEL (M/S)	DIAM (M)	PM_{10} Rate (#/HR)	$PM_{2.5}$ Rate (#/HR)
P501	400036, 4903965	30.90	Ambient	5.28	0.28	0.030	0.030
P502A	400026, 4903980	19.81	355.2	26.90	0.15	0.044	0.044
P502B	400027, 4903980	19.81	355.2	26.90	0.15	0.044	0.044
P503	400026, 4903980	20.30	Ambient	3.77	0.28	0.021	0.021
Source ID	LOCATION (UTM83)	HEIGHT (M)	Sigma-Y (M)	Sigma-Z (M)		PM_{10} Rate (#/HR)	$PM_{2.5}$ Rate (#/HR)
P504	400028, 4903980	3.05	0.71	1.42		0.015	0.0022